7/6/84

Peter Gaspar

We would like to know the metal content of this ½¢ ↷ Others are enclosed for comparison of condition, color, weight etc.

1854 Unc ½¢ Must be pure copper as it is a production strike.

1854 Proof ½¢ metal content unknown. Could be either pure copper or ~~mixture~~ of copper with nickel or zinc. What percentage if a mixture

1854 Bill Proof ½¢ ~~Probably~~ pure copper, but ~~chedy~~ for possible ~~could have some~~ nickel or zinc in it.

1856 Bill Proof ½¢ listed as 88% copper and 12% nickel and made from material developed for the cent. It has a color indicating such a mixture.

See endosed articles.

Given to Gaspar for Peter tests

7/6/84

Correspondence related to J-155 research & Publication in Penny Wise (1990)

X-Ray Fluorescence Examination
Brookhaven National Laboratory
July 9, 1984

% Found of Elements Examined, with X-rays employed.

Coin	Cu (K_α)	Zn (K_α)	Ni (K_α)	Sn (L_α)
1854 unc. ½ cent	95.4 ± 4%	n.d.	0.2%	n.d.
1854 normal proof ½ cent	95.0 ± 4%	n.d.	0.2%	n.d.
1856 "Cu-Ni" proof ½ cent	88.6 ± 3%	2.2 ± 0.3%	9.7 ± 1%	n.d.
1854 experimental(?) proof ½ cent	96.6 ± 4%	n.d.	0.05%	0.01%

n.d. = not detected (< 0.01%)

A conventional Siemens X-ray fluorescence spectrometer was employed. using 40 KV chromium X-rays to excite the sample. A ½" diameter area of the coin's reverse was scanned in each case. Scan times were less than 5 min. Note that the apparently low copper readings are presumed due to saturation at high counting rates. The other values are more accurate.

Peter Gaspar

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A conventional Siemens X-ray fluorescence spectrometer was employed. using 40 KV chromium X-rays to excite the sample. A ½" diameter area of the coin's reverse was scanned in each case. Scan times were less than 5 min. Note that the apparently low copper readings are presumed due to saturation at high counting rates. The other values are more accurate.

Peter Gaspar

ERIC P. NEWMAN NUMISMATIC EDUCATION SOCIETY

6450 Cecil Avenue, St. Louis, Missouri 63105

November 17, 1987 (mailed 11-18-87)

REGISTERED MAIL - 031 631 719 - $1000 - 4.25
RETURN RECEIPT REQUESTED Receipt .70
Post .39
$5.34

Mr. J. P. Martin
ANACS
818 North Cascade
Colorado Springs, CO 80903

Dear J. P.:

It has long been a mystery as to whether there is a copper-nickel Half Cent dated 1854. It is listed in the U. S. pattern books. It has passed through the collections of King Farouk, Norweb, and has now been turned over by a collector to me for metallic analysis. I will not comment upon it because we would first like to see a study of the metallic content. The piece is enclosed. In order to put this material in a position to be written up, I am enclosing also for a metallic content study a regular copper 1854 Half Cent, a regular copper 1856 Half Cent and a copper nickel 1856 Half Cent pattern. These pieces are all in gorgeous condition. Would you be nice enough to arrange for them to be analyzed at two locations on each coin. I will be most appreciative of your cooperation.

Sincerely,

Eric P. Newman

jah

Encls.

bc: Bernard Edison

PS Form 3811, Dec. 1990

RETURN RECEIPT, REGISTERED, INSURED AND CERTIFIED MAIL

● **SENDER:** Complete items 1, 2, 3, and 4.
Add your address in the "RETURN TO" space on reverse.

(CONSULT POSTMASTER FOR FEES)

1. The following service is requested (check one).
   - ☒ Show to whom and date delivered ..... 70¢
   - ☐ Show to whom, date, and address of delivery .. ___¢
2. ☐ RESTRICTED DELIVERY ___¢
   (*The restricted delivery fee is charged in addition to the return receipt fee.*)

TOTAL $.70

3. ARTICLE ADDRESSED TO:
Mr. J. P. Martin
ANACS
818 North Cascade
Colorado Springs, CO 80903

4. TYPE OF SERVICE:
- ☒ REGISTERED ☐ INSURED
- ☐ CERTIFIED ☐ COD
- ☐ EXPRESS MAIL

ARTICLE NUMBER
R031631719

(Always obtain signature of addressee or agent)

I have received the article described above.
SIGNATURE ☐ Addressee ☒ Authorized agent

5. DATE OF DELIVERY
11-2087

POSTMARK

6. ADDRESSEE'S ADDRESS (*Only if requested*)

7. UNABLE TO DELIVER BECAUSE:

7a. EMPLOYEE'S INITIALS

American Numismatic Association

WORLD'S LARGEST ORGANIZATION FOR COLLECTORS OF COINS, TOKENS, MEDALS & PAPER MONEY

CERTIFICATION SERVICE

Written in our 97th Year

December 21, 1987

Eric P. Newman
6450 Cecil Avenue
St. Louis, MO. 63105

Dear Eric:

The X-Ray spectroscopy was performed on your coins yesterday, the results are as follows:

1854 1/2 Cent (suspected copper-nickel composition).
1. Area tested-Obverse above and to the right of the date:

A. Elements tested	Percentage of Element in Sample
1. Copper	79.96%
2. Tin	16.11%
3. Silver	3.88%
4. Nickel	.04% Probably a trace element

2. Area tested-Miss Liberty's Profile:
A. Results nearly the same as above (under 1% deviation).

1854 1/2 Cent (Regular Issue, Copper)
1. Area tested-Obverse above and to the right of the date:

A. Elements tested	Percentage of Element in Sample
1. Copper	98.79%
2. Tin	.37%
3. Silver	.84%
4. Nickel	0%

2. Area tested-Miss Liberty's Profile:
A. Results nearly the same as above (under 1% deviation).

1856 1/2 Cent-Copper Nickel
1. Area tested-Obverse above and to the right of the date:

A. Elements tested	Percentage of Element in Sample
1. Copper	91.10%
2. Tin	0%
3. Silver	0%
4. Nickel	8.90%

2. Area tested-Miss Liberty's Profile:
A. Results nearly the same as above (under 1% deviation).

1856 1/2 Cent-Copper
1. Area tested-Obverse above and to the right of the date:

A. Elements tested	Percentage of Element in Sample
1. Copper	99%
2. Tin	Trace
3. Silver	Trace
4. Nickel	Trace

2. Area tested-Obverse-Miss Liberty's Profile:
B. Results nearly the same as above (under 1% deviation).

I am at a loss to explain the composition of the alloyed 1854 Half Cent, as I have seen no previous text mentioning this particular alloy. A suggestion that more tin was added "in an attempt to prevent the bronze pieces from tarnishing" can be found in a letter of James C. Booth, the melter and assayer of the mint.

This portion of the letter is paraphased in Judd's Pattern Book under the year 1854.

The accounting Department will bill you for the surface analysis.

I hope that I have been of useful service to you.

Happy Holidays,

J.P. Martin
ANACS Authenticator/Grader

JPM:lm

American Numismatic Association

WORLD'S LARGEST ORGANIZATION FOR COLLECTORS OF COINS, TOKENS, MEDALS & PAPER MONEY

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4. Nickel	.04% Probably a trace element

2. Area Tested-Miss Liberty's Profile
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1. Area tested-Obverse, Above and to the right of the date.

A. Elements Tested	Percentage of Element in Sample
1. Copper	98.79%
2. Tin	.37%
3. Silver	.84%
4. Nickel	0%

2. Area Tested-Miss Liberty's Profile
A. Results nearly the same as above (under 1% deviation).

1856 1/2 Cent-Copper Nickel

1. Area tested-Obverse above and to the right of the date.

A. Elements Tested	Percentage of Element in Sample
1. Copper	91.10%
2. Tin	0%
3. Silver	0%
4. Nickel	8.90%

I think this is a typo. The other coin sent was a regular 1856 copper, confirmed by the analysis. ←

2. Area tested-Miss Li
A. Results nearly the 1% deviation)

1856 1/2-Copper Nickel
1. Area tested-Obverse above and to the right of the date.

A. Elements Tested	Percentage of Element in Sample
1. Copper	99%
2. Tin	Trace
3. Silver	Trace
4. Nickel	Trace

2. Area tested-Obverse-Miss Liberty's Profile
B. Results nearly the same as above(under 1% deviation).

I am at a loss to explain the composition of the alloyed 1854 Half Cent, as I have seen no previous text mentioning this particular alloy. A suggestion that more tin was added "in an attempt to prevent the bronze pieces from tarnishing" cn be found in a letter of James C. Booth, the melter and assayer of the mint.

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I hope that I have been of useful service to you.

Happy Holidays

J.P. Martin
ANACS Authenticator/Grader

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2. Area tested-Miss Liberty's Profile
A. Results nearly the same as above(under 1% deviation)

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1. Area tested-Obverse above and to the right of the date.

A. Elements Tested	Percentage of Element in Sample
1. Copper	98.79%
2. Tin	.37%
3. Silver	.84%
4. Nickel	0%

2. Area Tested-Miss Liberty's Profile
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1. Area tested-Obverse above and to the right of the date.

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3. Silver	0%
4. Nickel	8.90%

2. Area tested-Miss Liberty's Profile
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1856 1/2-Copper ~~Nickel~~ cent
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ANACS Authenticator/Grader

JPM:lm

ERIC P. NEWMAN NUMISMATIC EDUCATION SOCIETY

6450 Cecil Avenue, St. Louis, Missouri 63105

January 15, 1988

Mr. J. P. Martin
ANACS
818 North Cascade Avenue
Colorado Springs, CO 80903-3279

Re: 1854 and 1856 ½ Cent
Metal Analysis

Dear J. P.:

I have been in South America and came home to find your letter of December 21, 1987 concerning the above. As you fully realize, you have found not only something of major importance, but a total surprise for everyone. Looks are deceiving enough, but fortunately the so-called 1854 "copper nickel" half cent has turned out to be of entirely different composition than the 1856 copper nickel half cent. Instead of being just copper, it has copper, tin and amazingly, silver, etc., as a most unusual mixture.

Thank you for the Booth letter data. We will have to obtain the full record now that the coin supports the experiments in a new combination.

Naturally this matter will be written up and I will try to have the owner of the special piece publish it both in The Numismatist and in Pennywise simultaneously. Please keep the data confidential for that reason. You and ANACS will get appropriate credit, I believe.

I enclose a check for the $100 cost of the test. When you send the four pieces back, I believe a value of $10,000 ought to be enough even though more value is now apparent.

Please correct the typos in your letter as per the enclosed suggestions and send me a newly signed letter of the same date (perhaps two originals would be nice).

Thank you for your excellent cooperation and your sound observations.

Sincerely,

Eric P. Newman

jah

Encl.

bc: Bernard Edison

ERIC P. NEWMAN NUMISMATIC EDUCATION SOCIETY

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Encl.

bc: Bernard Edison

EDISON BROTHERS STORES INC.

EXECUTIVE OFFICES: 501 NORTH BROADWAY MAIL: P.O. BOX 14020, ST. LOUIS, MO. 63178. PHONE: 314-331-6000 TELEX 797979

BERNARD EDISON
CHAIRMAN FINANCE COMMITTEE

January 5, 1988

ERIC NEWMAN

Well, well, well! Our 1854 copper nickel is not copper nickel, as suspected. However, it is also not regular copper.

What are we to make of this Tin Lizzie?

The coins were not returned with this letter, but I assume they will follow.

BERNARD EDISON

mb

Attachment
(original letter
from AMA)

ERIC P. NEWMAN NUMISMATIC EDUCATION SOCIETY

6450 Cecil Avenue, St. Louis, Missouri 63105

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ANACS
818 North Cascade Avenue
Colorado Springs, CO 80903-3279

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jah

Encl.

bc: Bernard Edison

CABLE ADDRESS
"NUMISMA" NEW YORK

TELEPHONE
(212) 234 - 3130

THE·AMERICAN·NUMISMATIC·SOCIETY
(FOUNDED 1858 · INCORPORATED 1865)
BROADWAY·AT·155TH·STREET
NEW·YORK·N.Y. 10032

January 15, 1988

Mr. Eric P. Newman
Edison Brothers Stores, Inc.
Post Office Box 14020
St. Louis, Missouri 63178

Dear Eric,

Enclosed are the relevant pages from the Jess Peters sale for April 20, 1965.

We have the 1954 mint report in photocopy but I find no reference to copper alloy experiments in the report. I enclose photocopy of the title page and two other pages from the 1855 report which include the proposed recoinage law with Snowden's comments. You will note that he favored a copper/zinc/tin alloy for the cent.

Sincerely yours,

Leslie A. Elam
Director

LAE:lw
Encl.

Tett notes on Judd - 155. 1990 (?)

6 1895 no mention of 1854 ½¢ pattern

1 1892 "

✓8 1950 Some mention ... at time of flying eagle left-over planchet from 1856 striking - however, uncertain

4 1940 listed - no comment - !" copper-nickel"

✓3 1959 Yes - discussion indicates why tin, but lists ½¢ as C-N

✓2 1913 (REPRINT 1940 lists) #192 as "unique ... C-N ... Woodin coll. "

5 1950 listed "A-W 192" no comments

7 1953 Neither 1854 or 1856 included in this fixed-price offering

Penny-Wise 3/15/1990

The 1854 Copper-Nickel Pattern Half Cent - Does It Exist?

Introduction

There are three purposes to this article. The first is to describe the pleasure of an experience in numismatic research that extended over approximately fifteen years. The second purpose is to demonstrate that almost any collector with enough patience and enthusiasm can engage in numismatic research, even though he may not be one of EAC's more experienced and scholarly members. The third purpose is to disclose the answer to the question as to whether the 1854 copper-nickel pattern half cent exists.

The presentation will be in three parts, of which this article is the first. It will tell how the question arose and describe the search for the answer. The second part will be a visual and oral presentation at the Forum during EAC's 1990 Convention in Orlando, where the coin will be displayed and the question will be answered. The third part will be a follow-up article on the subject which will be submitted to Penny-Wise.

A Brief Review of the History of the 1854 Copper-Nickel Pattern Half Cent

The first published listing of the 1854 copper-nickel pattern half cent was in the Adams and Woodin book entitled United States Pattern, Trial, and Experimental Pieces, published in 1913. The coin was listed as Adams-Woodin number 192 and described as "unique." In 1954 a second specimen appeared for the first time in the Anderson-Dupont sale, lot 1155. The variety was listed in Judd's United States Pattern, Experimental and Trial Pieces (1959) and given the number 155. The information in Judd is merely a restatement of what appeared in Adams-Woodin, with the addition of the second specimen. Similar references were in Empire Coin Company's United States Half Cents (1962); in the first edition of Roger Cohen's American Half Cents (1971); and in Walter Breen's Encyclopedia of United States and Colonial Proof Coins (1977). By the time of the publication of Cohen's second edition (1982) and Breen's Encyclopedia of U.S. Half Cents (1983), I had brought the question as to the existence ot the coin to the attention of those authors. It is discussed on page 123 of Cohen and page 451 of Breen. However, the seventh edition of Judd, revised by Kosoff in 1982, still listed J155 as "two known."

The Spence Sale and Its Consequences

The Dupont specimen reappeared as lot 880 in the Spence sale on March 15, 1975, exactly fifteen years before the date of this issue of Penny-Wise. I examined it carefully before the sale and then bought it for $1,700, a price approximately four times that of a regular late date copper proof, and about the same price as the 1856 copper-nickel pattern in the same sale. The price was less than I had expected, because twenty years earlier, in the Anderson-Dupont sale, the same coin had sold for $350, which was about eight times the current price for a late date proof, and four times the price of an 1856 copper-nickel pattern.

The coin seemed perfectly satisfactory to me. It had a golden color well within the normal range of naturally toned examples of the 1856 copper-nickel pattern half cent. In fact, there was a slight edge nick which almost served the function of a chop mark. Inside the nick the coin was also an appropriate brassy color. Moreover, the coin was accompanied by the envelope from the Dupont sale.

When I got the coin home, however, something vaguely troubled me about it. There was something not quite as good as it ought to be, but I couldn't figure out what. Eventually, it dawned on me that it was too good. The coin was simply too well struck up. It was fully struck on both the obverse and reverse, particularly the denticles.

To understand the significance of this, one has to realize that the 1856 copper-nickel half cent pattern never comes fully struck up. I had unsuccessfully searched for years for a fully struck example. Each one I had seen or heard of had significant areas of flatness in the hair and on several leaves, plus a consistently mushy area lacking details in many of the denticles. The illustrations on pages 456 and 457 of Breen's Encyclopedia of U.S. Half Cents, and those below in this article, clearly show that. The explanation always given was that the nickel was a harder metal than copper, and that the coinage presses in the Mint used for striking copper coins lacked sufficient pressure to fully bring up the details onto the faces of the tougher copper-nickel planchet. Yet, here was this 1854 specimen struck two years earlier, supposedly from the same material, without a trace of flatness. Why? Perhaps since only two of the 1854 patterns

were made, a special setting was made in the coinage press to make sure that the details were sharp. But, at the same time, there was now uncertainty as to whether these pieces were made of cooper-nickel.

Next, I considered the weights of the respective coins, and the doubts multiplied. The normal copper half cents of the 1850s weighed about 84 grains. I had not seen specimens that varied significantly from this standard. The 1856 copper-nickel patterns weighed consistently in the range of 70 to 72 grains. This 1854 pattern was listed in the Anderson-Dupont catalogue as weighing 84 grains, and the comment was repeated in the Spence sale catalogue. Quickly, I popped my new acquisition on the scale, and the result was an unambiguous 84.1 grains. Uh, oh, trouble in River City!

Not knowing precisely what to do next, I consulted a friend and neighbor, the noted numismatist, Eric P. Newman. He had no explanation for the differences in strike and weight between this 1854 and the 1856 patterns, if they were made of the same metal. He offered to send the coin to a friend in the chemistry laboratory at Washington University in St. Louis for an X-ray spectroscope, which he said would determine clearly what the metallic content was without damaging the coin.

We sent the coin off, together with a regular copper 1854 proof, a copper 1856 proof, and a copper-nickel 1856 pattern.

When the results came back, they were clear. The Dupont-Spence coin, except for traces of impurities, was all copper, just as were the 1854 and 1856 regular metal proofs. The 1856 copper-nickel pattern showed a clear presence of around 10 percent nickel.

Naturally, my feelings were mixed. I had made an interesting discovery, but at the price of realizing that I did not have the rare coin I thought I had purchased. I returned the coin to Stack's with a copy of the chemical analysis. I received back a prompt refund along with a gracious letter of regret.

Next, of course, my thoughts turned to the other specimen. The Adams-Woodin piece now had the adjective "unique" restored to it. But, how sure was

I that it was made of copper-nickel? Perhaps it was also an unusually toned brassy looking regular copper proof. So began The Search.

The Search for Brown October

First, I looked to see if I could find a picture of the Adams-Woodin coin, which might show whether it was fully struck or not. No luck. Nor could I find any reference to its weight. Then I asked people who might have seen the coin if they remembered whether or not it was fully struck. Actually, no one recalled ever having seen the coin, since it had disappeared from view many years earlier.

Eventually, I learned that the Adams-Woodin specimen had reappeared in the Farouk sale as part of lot 1750, combined with an 1855 copper $10 U.S. pattern. The two-coin lot sold for thirty Egyptian Pounds, or around $90.

The next bit of information that I received was that it had been bought at the Farouk sale by a Florida dealer named Randall. My search took on a new direction.

Some interesting information and lively anecdotes about Mr. Randall surfaced. Unfortunately, included in the information was that he was deceased, as was Mrs. Randall. No one had the slightest clue as to who might have been a customer of his for a coin such as an 1854 copper-nickel pattern half cent.

A gnawing worry invaded my thoughts. Suppose that the coin was, as I believed possible, only a regular copper 1854 half cent. But, suppose further that it had become somehow separated from its pedigree, so that there was nothing to link this ordinary half cent with its distinguished history. We would then be forever deprived of the opportunity to establish conclusively that the 1854 copper-nickel pattern did not exist. It would retain forever the theoretical possibility of reemergence and thus sink into that dismal abyss of unresolved and unresolvable questions. (**Urgent**

request -- All of you who own important or pedigreed coins, please keep the pedigrees with the coins for the benefit of future investigators.)

Years passed. More years. Every so often I would meet someone I thought might possibly know the location of the coin. But when I asked, no one had even a hunch.

Eureka! The Norweb Sale

Suddenly, one day in early 1987 the phone rang. It was Frank Wilkinson. "You know the half cents in the Norweb collection are going to be sold by Bowers and Merena in a few months, don't you?" he asked. "Yes," I replied, "I am really looking forward to it." "There is a coin in there that I think you have been looking for," said Frank mischievously. When he told me it was the Farouk specimen of the 1854 copper-nickel pattern, I literally jumped out of my chair. Frank further told me that Del Bland had seen the coin and considered it to be a regular 1854 copper half cent.

As soon as the coins were available for inspection, I rushed to see them. There were, of course, many fabulous half cents. However, the star for me was lot 134, something that I believed to be common - namely an ordinary copper 1854 half cent. Almost from across the room I could see that it was fully struck up. The color was within the normal range of natural toning, and the weight was given as 83.4 grains, approximately the standard of the regular issue copper half cents.

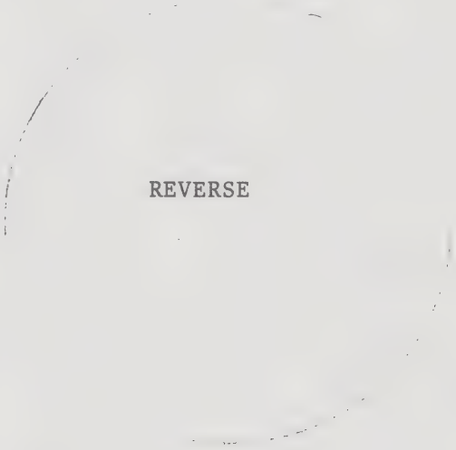
Eureka! Eureka! The undiscovery of a variety! The description in the catalogue gave a fair recital of the doubts concerning the metallic content of the coin, repeating Breen's comments at length. However, no actual analysis had been made.

Apparently, most others, but not everyone, shared my view that the coin was merely a regular copper one. I bought it for $1,980. I considered that its actual value, except for its historical interest, was in the range of $100. The excess I regarded as a philanthropic contribution to further the study of numismatics. Again, with the assistance of Eric Newman, the

coin was sent off for non-destructive metal analysis, this time to the ANA certification service which secured the cooperation of the personnel at Colorado College.

Shown below are pictures of the Woodin-Farouk-Norweb specimen, along with a regular uncirculated 1854 copper half cent and an 1856 copper-nickel pattern.

OBVERSE



REVERSE

1854 regular issue

OBVERSE

REVERSE

1854 Copper-Nickel Pattern ??? Woodin-Farouk-Norweb

OBVERSE

REVERSE

1856 Copper-Nickel Pattern

At the EAC convention in Orlando, I plan to display these coins. At the Forum I will present the results of the metallic analysis and make a few other comments about the pleasures of the hunt for numismatic information. Any EAC member who will not be in Orlando is invited to study the evidence presented above and send me a vote as to whether the coin is a regular copper half cent, copper-nickel pattern, or something else. If you believe it is not a copper-nickel pattern, I would welcome any speculation as to how an otherwise careful numismatist such as Mr. Woodin could have made such a mistake. Please write me at P.O. Box 14020, St. Louis, MO 63178. Those who are going to be in Orlando will have an opportunity to see the coin before the Forum and cast a vote after direct inspection.

Also, for those not going to Orlando, I plan to submit my remarks at the Forum for publication in Penny-Wise.

R. TETTENHORST
February 26, 1990

2nd draft -- 5/14/90

THE 1854 COPPER-NICKEL PATTERN HALF CENT - DOES IT EXIST? -- PART II

R. TETTENHORST

Hello again, Patient Readers!

At the end of Part I of the 1854 Copper-Nickel Half Cent saga

When last we chatted, the Woodin-Farouk-Norweb coin, the so-called 1854 copper-nickel pattern, had been sent off to the ANA Certification Service for an ~~X-ray~~ spectroscopy. Based on the experience with the Dupont-Spence specimen and the full-strike plus 83.4 grain weight of the Norweb specimen I knew what the results of the test would be, namely:

1) It was impossible for there to be nickel in the alloy, therefore, ~~Specific gravity~~ ~~[illegible]~~ than copper.

2) The Norweb coin was a regular copper 1854 half cent, and thus

3) Since the coin was the only specimen known of Judd 155, the latter simply did not exist.

While awaiting the return of the letter confirming these ~~facts~~, I began writing an article entitled "The Undiscovery of a Variety"

ANACS

When the letter from the ANA Certification Service did arrive, I opened it ~~almost~~ nonchalantly. However, certainty soon dissolved. The first assumption was indeed correct. The coin did not contain any nickel. However, from there on I could not have been more wrong. The metallic content of the coin, rounded off, was:

nickel	0%
copper	80%
tin	16%
silver	4%

J-155

Tin! Silver! Clearly J155 was firmly reestablished as a pattern in an experimental alloy. What a totally unexpected development!

From every answered question comes a variety of conclusions, and usually a new set of questions.

CONCLUSIONS

1) Searching for numismatic information is great fun. In fact, it can be as much fun as searching for coins. Even when I wasn't making any progress toward the answer I was looking for, it was an enjoyable experience. I met many friendly numismatists. Typically, they listened to the question and the reason for asking it; they expressed interest; they encouraged me to continue the search; and they made suggestions as to other people who might be contacted.

2) Almost anyone can do it. The observations made and investigations undertaken did not require any particular depth of numismatic knowledge. As our mid-western farmers sometimes say, "Even a blind pig will pick up an acorn once in a while."

3) Just because something has been written down in books for a long time and repeated often doesn't always mean that it is true.

4) A certain humility is important for a researcher. Just because I knew some significant facts didn't mean that I knew all the facts.

5) ~~J155~~ J-155 is a pattern, but, of course, with a much different metallic content than ~~has traditionally been~~ was heretofore ascribed to it.

QUESTIONS

1) ~~Why did~~ Was Mr. Woodin ~~make a mistake of this magnitude?~~ guessing as to the metallic content of this coin or was its content improperly ~~marked~~ identified?

2) Why did so many knowledgeable numismatists examine the Woodin-Farouk-Norweb ~~specimen~~ half cent and the Dupont-Spence ~~specimen~~ half cent over the years without raising the questions about the differences in strike and weight, which are so obvious using hindsight?

3) Why was there tin and silver in this Norweb coin alloy? Here let me offer some hypotheses. As to ~~the~~ tin; J. P. Martin of the ~~ANA Certification~~ ANACS

~~Service~~ quotes a letter from James C. Booth, the melter and assayer of the ~~mint~~ U.S. Mint, who said that more tin was added "in an attempt to prevent the bronze pieces from tarnishing." As to the silver: since the ~~mint~~ U.S. Mint was testing alloys for a smaller one-cent piece to replace the large copper~~s which most of us love~~ cents, a 4 percent silver content would be ~~just~~ about what was needed to ensure that the new coins would contain one cent's worth of metal. ~~Proof~~ ~~and~~ ~~in which~~ when this coin was made, those responsible for our ~~money~~ coins were still operating under the quaint ~~nineteenth-century~~ notion that ~~money~~ coin should have intrinsic value. They did not realize that one ~~could~~ should rely solely on the integrity of our elected officials to make sure that money retained its full ~~worth~~ value. They believed that you needed ~~precious metal~~ full content in ~~money~~ coin to avoid inflation. It was such a ~~cynical~~ backward age!

4) Are there other nineteenth-century pattern coins which have a metallic content different from ~~that which is listed~~ what is specified in ~~the current~~ the best reference~~s~~ ~~works~~? How many others have actually been tested?

Finally, appreciation should be expressed to Frank Wilkinson for the clarity of his photographs, which reveal so clearly the critical issue of strike quality. Also, thanks ~~are due~~ to those EAC members who wrote me ~~at length~~ in detail after the March, 1990 article appeared, and ~~the~~ others who expressed ~~verbal and written~~ opinions at the convention. And, of course, without the help of Eric P. Newman who arranged for and those who carried out the non-destructive metallic tests, none of the new information would be known.

5/17/90

ERIC NEWMAN

This is a revised draft as submitted to Penny-Wise.

Thank you for your many suggestions.

Tett

FROM THE DESK OF BERNARD EDISON

THE 1854 COPPER-NICKEL PATTERN HALF CENT - DOES IT EXIST? -- PART II

R. TETTENHORST

Penny Wise
5/15/1990

Hello again, Patient Readers!

When last we chatted, the Woodin-Farouk-Norweb coin, the so-called 1854 copper-nickel pattern (Judd-155), had been sent off to the American Numismatic Association Certification Service (ANACS) for X-Ray spectroscopy. The Dupont-Spence piece had previously proven to be 100 percent copper, and not a pattern. The Norweb piece had a similar full-strike and similar 83.4 grain weight. Therefore, I thought I knew what the results of the test on the Norweb piece would be, namely:

1) that it was impossible for nickel to be in the alloy;

2) thus, the Norweb coin would be a regular copper 1854 half cent;

3) thus, since no other example of J-155 was known, that pattern simply did not exist.

While awaiting the letter to confirm these conclusions, I began writing an article with the title "The Undiscovery of a Variety."

When the letter from ANACS did arrive, I casually opened it. However, my nonchalance soon dissolved. My first assumption was indeed correct, since the coin did not contain any nickel. However, as to the other assumptions, I could not have been more wrong.

The approximate metallic content of the coin was:

copper	80%
tin	16%
silver	4%
nickel	0%

Tin! Silver! Clearly J-155 was firmly reestablished as a pattern in an experimental alloy. What a totally unexpected development!

From every answered question comes a number of conclusions, and often a new set of questions.

CONCLUSIONS

1) Searching for numismatic information is great fun. In fact, it can be as much fun as searching for coins. Even when I wasn't making any progress toward the answer I was looking for, it was an enjoyable experience. I met many friendly numismatists. Typically, they listened to the question and the reason for asking it; they expressed interest; they encouraged me to continue the search; and they made suggestions as to other people who might be contacted.

2) Almost anyone can do research. The observations made and investigations undertaken did not require any particular depth of numismatic knowledge. As our mid-western farmers sometimes say, "Even a blind pig will pick up an acorn once in a while."

3) Just because something has been written down in books for a long time and often repeated doesn't always mean that it is true.

4) A certain humility is important for a researcher. Just because I knew some significant facts didn't mean that I knew all the facts.

5) J-155 is a pattern, but, of course, with a much different metallic content than was previously ascribed to it.

QUESTIONS

1) Why did Mr. Woodin make a mistake of this magnitude?

2) Why did so many knowledgeable numismatists examine the Woodin-Farouk-Norweb half cent and the Dupont-Spence half cent over the years without raising the questions about differences in strike and weight between these 1854 coins and the 1856 copper-nickel patterns, which are so obvious using hindsight?

3) Why was there tin and silver in this Norweb coin alloy? Here let me offer some hypotheses. As to tin, J. P. Martin of ANACS quotes a letter from James C. Booth, the melter and assayer of the U.S. Mint at Philadelphia, who said that more tin was added "in an attempt to prevent the bronze pieces from tarnishing" (it has previously been assumed that this comment referred to J-162, the one cent piece struck in a material described as "Oroide"). As to silver, since the mint was testing alloys for a smaller one-cent piece to replace the large copper cents which most of us love, a 4 percent silver content would be about what was needed to ensure that the new coins would contain one cent's worth of metal. At the time when this pattern was made, those responsible for our coins were still operating under the quaint nineteenth-century notion that money should have intrinsic value. They did not realize that one could rely solely on the integrity of our elected officials to make sure that money retained its full worth. They believed that you needed full precious metal content in money to avoid inflation. It was such a cynical age!

4) Are there other nineteenth-century pattern coins which have a metallic content different from what is specified in the current references? How many others have actually been tested?

Finally, appreciation should be expressed to Frank Wilkinson for the high quality of his photographs, which reveal so clearly the critical issue of strike intensity. Also, thanks to those EAC members who wrote me after Part I of the article, which appeared in the March, 1990 issue

of Penny-Wise, and others who expressed opinions at the May, 1990 EAC Convention. And, of course, without the help of Eric P. Newman who arranged for and those who carried out the nondestructive metallic tests, none of the new information would be known.

May 16, 1990

* * *

X-Ray Analysis Reveals Previously Unsuspected Pattern

Within the study of U.S. pattern coinage and related items are many unanswered questions. The most common area of uncertainty concerns the exact composition of a given piece.

In the standard reference on the series, *United States Pattern, Experimental and Trial Pieces*, Dr. J. Hewitt Judd usually refers to an alloy of 75-percent copper/25-percent nickel as "nickel" and 88-percent copper/12-percent nickel as "copper-nickel," though in common numismatic usage both are referred to as "copper-nickel." Pure nickel is called "nickel (pure)" and is described as magnetic, while various experimental alloys are spelled out when known.

Sometimes experiments involved the use of similar alloys within the same year, such as the Flying Eagle large cent patterns of 1855, which were struck in copper (J-167), bronze (J-168), 80-percent copper/20-percent nickel (J-170), and 60-percent copper/40-percent nickel (J-171). In most cases the first two can be differentiated by color, the copper being a solid chocolate brown and the bronze showing streaks of brass from improper mixing of the copper, tin and zinc. The two copper-nickel alloys, however, cannot be distinguished by the same method.

Recently ANACS received four copper-nickel pieces with the request that they be identified as either J-170 or J-171. Rather than return them as "No Decision," as would normally be the case, ANACS decided to bear the expense of X-ray analysis to see if there might be some other way of telling them apart once they were properly identified.

Surprisingly, the four pieces proved to be composed of neither of the expected alloys. The first three pieces averaged approximately 75-percent copper/12-percent nickel/13-percent zinc, an alloy known as one type of German silver. The fourth piece showed approximately the same composition plus a trace of aluminum, which may have been surface contamination on the sample tested, an unintentional contamination of the alloy itself that occurred when it was melted, or a deliberate attempt to soften the alloy.

German silver 1855 pattern cents. Weakly-struck areas around eagle's head, wings, talons and tail feathers; wreath and reverse lettering also is weak.

The composition certainly needed softening, as the four pieces examined were all very weakly struck. After the government's last experiment with German silver (other alloys were tested on 1853 and 1854 cents), the Mint gave up and adopted the 88-percent copper/12-percent nickel alloy used in small-sized cents of 1856-64.

The four pieces tested by ANACS, which ultimately were designated J-170a, might be missing links between the various copper-nickel and German silver patterns of 1852-55, and the copper-nickel Flying Eagle and Indian cents. The 12-percent nickel content of the four pieces is consistent with that of the 1856-64 cents, but the zinc was replaced by an equal percentage of copper in the cent issues.

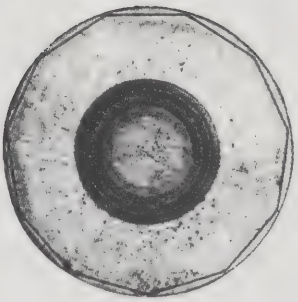
This discovery has raised the question of whether Judd numbers 170 and 171 actually exist. Considering that four pieces thought to be one or the other turned out to be neither, perhaps no typical examples of either variety exist.

* * *

While on the subject of experimental pieces, one issue of particular interest was struck by the U.S. Mint, not to test alloys or designs, but rather vending machines and coin counters.

Struck by the thousands in 1979, the pieces were loaned to manufacturers of equipment produced to handle the flood of Susan B. Anthony dollars released that year. The pieces were struck in copper-nickel clad on copper for the vending machine and slug rejector manufacturers, who were concerned with the electrical-resistance characteristics of the actual coins; and in solid copper-nickel for coin-wrapping and counting-machine manufacturers, who were only concerned about the physical dimensions of the actual coins.

The characteristics of the experimental piece—diameter, weight, 11-sided raised rim and reeded edge—resemble those of the SBA dollar. The obverse and reverse of the piece feature broad, shallow mounds that simulate the raised relief of the actual coin.



Susan B. Anthony dollar trial piece shows 11-sided raised rim and shallow mound on either side. Machining marks indicate mound was crudely routed into a blank die with a lathe.

According to Alan Herbert of *Numismatic News*, the U.S. Mint takes the position that because the test pieces were not legally issued, they are subject to seizure by the Secret Service. Special thanks are extended to Mr. Herbert for the photographs and information presented in this discussion.

ANACS CALENDAR OF EVENTS

MAY

4-6 AMARILLO, TX. Civic Center. ANACS booth and seminar, Texas Numismatic Association Convention. Nela Runkle, 4304 Jennie, Amarillo, TX 79106.

4-6 GRAND RAPIDS, MI. Grand Center & Grand Plaza. ANACS booth and seminar, Michigan State Numismatic Society Convention. Florence Schook, P.O. Box 2014, Livonia, MI 48154.

18-20 ATLANTA, GA. Galleria Mall. ANACS booth and seminar, Georgia Numismatic Association Convention. Michael W. Griffith, P.O. Box 611, Lilburn, GA 30247.

31-June 3 LONG BEACH, CA. Long Beach Convention Center. ANACS booth, Long Beach Expo. S.L. Lopresto, 309 E. Ocean Blvd., Long Beach, CA 90802.

31-June 3 TULSA, OK. Tulsa Assembly Center. ANACS booth and seminar, Oklahoma Numismatic Association Convention. ONA, P.O. Box 35323, Tulsa, OK 74153.

JUNE

21-24 CHERRY HILL, NJ. Hyatt Cherry Hill. ANACS booth and seminar, Garden State Numismatic Association 9th Annual Convention. Stephen R. Taylor, 70 West View Ave., Dover, DE 19901.

JULY

28-August 1 DETROIT, MI. Cobo Hall Convention Center. ANACS booth, 93rd Anniversary Convention of the American Numismatic Association. Florence Schook, P.O. Box 2014, Livonia, MI 48154.

OCTOBER

4-7 LONG BEACH, CA. Long Beach Convention Center. ANACS booth, Long Beach Expo. S.L. Lopresto, 309 E. Ocean Blvd., Long Beach, CA 90802.

19-21 LITTLE ROCK, AR. Camelot Inn. ANACS booth and seminar, Arkansas Numismatic Society Annual Coin Show & Convention. ANS, 115 Donaghey Bldg., Little Rock, AR 72201.

(Pieces listed as A-W 140, 141, 142 are die trials. See appendix A.)
(There is no record of the piece listed as A-W 180. This was probably a misdescription of A-W 171.)

1854

James C. Booth, the Melter and Assayer, suggested to Mr. Snowden, the Director of the Mint, that cents could be made out of German silver in a size between the dime and the quarter and a little thicker than a dime. In submitting pieces for examination on January 17, 1854, he reported that these were prepared solely to show the size and the character of the metal, not the design. In fact the obverse die was prepared by a copying lathe from a silver dollar obverse.[1] This fact explains the concentric lines blurring the design of Liberty, the distortion of the stars and the incompleteness of the numerals in the date.

On April 3, 1854, Mr. Snowden proposed to the Secretary of the Treasury that the copper coins be reduced in weight. He had concluded that it was the government's stamp on the coins and not their intrinsic value that made them circulate. The bulk resulting from maintaining their intrinsic value was a hindrance to their use.[1]

Mr. Snowden therefore directed the preparation of a cent weighing 100 grains in copper, and one of 96 grains in French bronze; copper 95%, tin 4%, zinc 1%.[2] These were struck using two obverse dies, the Liberty head and the flying eagle, and two reverse dies with different wreaths.

Mr. Booth reported that in an attempt to prevent the bronze pieces from tarnishing, more tin was added and this gave the pieces a golden color, "Oroide."[3] Restrikes were made, some with damaged dies.

HALF CENT. Regular dies trial piece.

155. Copper-nickel—P.E. (A-W 192) R.8. Two known.

CENT. Experimental piece. **Obv.** Liberty seated, thirteen stars, 1854. **Rev.** 1 CENT in a thick wreath of oak with acorns.

156. German silver (40% nickel, 40% copper, 20% zinc.)—R.E. (A-W 149) R.6. B-R 11/79 **$1,550.00.**

157. German silver (30% nickel, 60% copper, 10% zinc.)—R.E. R.6. **$1,550.00.**

158. Nickel 40%, copper 60%—R.E. R.6. (A-W 146) These have a much whiter color than the others, and are often on defective planchets. NERCG 4/80. **$3,000.00.** Hughes 7/80 **$850.00.**

159. Copper—P.E. (A-W 148) R.7. (Most of the plain edge copper pieces are electrotypes, made at the Mint by Du Bois in such a way that they have a clear ring when struck.) 1) Conn. State Library. 2) 1976 A.N.A. **$625.00.**

(There is no record of the pieces listed as A-W 145 or A-W 147.)

[1] Letters, Mint & Branches, 1854. The National Archives. Washington, D. C.
[2] No. 114, Letters, Mint & Branches, 1854.
[3] No. 171, Letters, Mint & Branches, 1854.


CENT. Obv. Head of Liberty wearing a diadem inscribed LIBERTY; the hair is knotted at the back and tied with a rope of pearls. **Rev.** Designed by Franklin Peale. ONE CENT in a small laurel wreath.

160. Copper—P.E. (A-W 186) R.4. Weight 100 grains. Ivy 8/80 **$1,450.00,** Hughes 7/80 **$1,050.00.**

161. Bronze—P.E. (A-W 187) R.5. Weight 96 grains. Restrikes exist. Hughes 7/80 **$2,100.00,** Ivy 8/80 **$800.00.**

162. Oroide—P.E. (A-W 188) R.7. NERCG 4/80 **$2,500.00.**


CENT. Obv. Eagle flying left surrounded by thirteen stars. **Rev.** ONE CENT in a small laurel wreath.

163. Copper—P.E. (A-W 189) R.4. Weight 100 grains. 1976 A.N.A. **$475.00.** Hughes 7/80 **$1,000.00**—91½ gr.

164. Bronze—P.E. (A-W 190) R.5. Weight 96 grains. Restrikes exist. Ivy 8/80 **$3,600.00. $1,000.00.**

[Also reported in nickel alloy but not verified (A. S. Jenks sale, E. Cogan, April 1877.) If it exists, it is probably a restrike.]


CENT. Obv. Eagle flying left surrounded by thirteen stars. **Rev.** ONE CENT in a large laurel wreath. Restrikes exist.

165. Copper—P.E. (A-W 191) R.8. One in the Smithsonian Institution, another in Massachusetts Historical Society. A third was in the Brand collection. Restrikes only. There are 4 leaves in wreath under E in STATES.

165a. Same as 163 above.

165b. Bronze—P.E. Same but the laurel wreath is medium and has three leaves under the E in STATES. 1) Smithsonian. 2) R. B. White. 3) Wilson, ex-S. Jaffe, Kosoff Private sale 1979 **$2,000.00.**

Restrikes of all three types usually are much heavier than originals and are struck from injured (clashed) dies.

HALF DIME. Experimental piece. Regular dies.

166. German silver—P.E. (A-W 185) R.7. All seen are off center. Made to show how easily argentan, one of the German silver alloys proposed for cents, could be confused with silver.

(The pieces listed as A-W 181 to 184 inclusive have been found to be counterfeits.)

1855

In the search for an acceptable substitute for the large copper cent, further experiments were conducted using different alloys of copper and nickel. One alloy of 60% copper and 40% nickel produced pieces which had the color of steel.[1] Another containing 80% copper and 20% nickel had the same characteristics as the standard alloy of 75% copper and 25% nickel later used for the regular issue three and five cent pieces.

The pieces with Roman numerals I to VIII in obverse field are from the very rare complete sets, originally distributed at eight pieces per set, in different alloys.


CENT. Obv. Large flying eagle surrounded by thirteen stars. **Rev.** ONE CENT in larger, thicker laurel wreath.

167. Copper—P.E. (A.W 197) R.5. Originals 100 grains, R. B. White 92.3 grains. Restrikes about 115 grains. Ivy 8/80 **$4,250.00.**

167a. Pure Nickel—P.E. R.8? NERCG vg **$850.00.**

168. Bronze—P.E. (A-W 200) R.5. Originals 96 grains. Restrikes about 115 grains. Garrett 3/80 **$5,000.00.**

169. Oroide—P.E. (A-W 196) R.7. Hughes 7/8. **$1,800.00.**

(The piece described as brass, A-W 196, is undoubtedly oroide.)

CENT. Experimental piece. Same dies as above.

170. Copper 80%, nickel 20%—P.E. (A-W 195 & 199) R.6. **$900.00.**

171. Copper 60%, nickel 40%—P.E. (A-W 198) R.7. **$1,000.00.**
This often on defective planchets; very much whiter or grayer color than the regular 5¢ alloy. Looks like steel and is sometimes so catalogued.


CENT. Obv. Large flying eagle surrounded by thirteen stars. **Rev.** ONE CENT in smaller, thinner wreath.

172. Copper—P.E. R.6. **$1,100.00.**

173. Bronze—P.E. (A-W 201) R.7. **$1,000.00.**

174. Oroide—P.E. R.7.

174a. Nickel—See Mickley, Bushnell catalogs. Kosoff 6/79 VF **$1,250.00.** May be unique.

HALF DOLLAR. Regular dies trial piece.

175. Aluminum—R.E. Unique. (In the collection of Princeton University.)

GOLD DOLLAR. Regular dies trial piece.

175a. White Metal—P.E. Unique. Irregular planchet.

EAGLE. Regular dies trial piece.

176. Copper—R.E. (A-W 193) R.8. Restrike, from rusty dies.

(Three of the pieces listed as A-W 194 were found to be counterfeits, no other pieces known.)

[1] No. 197, Letters, Mint & Branches. 1854. National Archives, Washington, D. C.

1856

During this year Congress was considering the bill which became the Act of February 21, 1857. This authorized cents weighing 72 grains to be struck from an alloy of 88% copper and 12% nickel. These were intended for the redemption of the large cents and the fractional parts of the Spanish and Mexican dollars, which had been passing freely throughout the country for a long time.

During this period the Melter and Refiner, Booth, had continued the experiments, trying to find a better alloy for the cent, under instructions from the Director of the Mint, J. R. Snowden. On July 11, 1856, Mr. Snowden reported to the Secretary of the Treasury, James Guthrie, that recent experiments had shown an alloy of 88% copper and 12% nickel to be far superior to bronze. "I have accordingly caused some specimens to be struck, fifty pieces of which I send you by Mr. Colmisnil, an agent of the Department. To prevent expense & delay we have used the half-cent dies. The specimens will show that the mixture receives a good impression from the dies, and exhibits its color and general appearance." Mr. Snowden then proposed that cents be authorized in this alloy with a standard weight of 72 grains, maximum deviation 3 grains.[1]

Other half-cents were struck using an alloy of 90% copper and 10% nickel. Originally these had a gold-like color and weighed 69 grains. However, at this time it is very difficult to differentiate these from the first ones struck. Oxidation and cleaning have rendered color an unreliable guide and since there was a maximum deviation of 3 grains allowed for the 72 grain planchets, these pieces cannot be differentiated by weight either. Because they could only be differentiated by chemical analysis, no separate listing is given.

After the dies for the flying eagle cent were prepared Mr. Snowden wrote to Mr. Guthrie on Dec. 4, 1856 as follows: "Sir, I have caused a few hundred specimens of the proposed new cent to be struck. It would probably aid us in our efforts to deliver the Country from the present large and unsightly coin if a specimen were furnished to each member of Congress. If you concur in this suggestion I will deliver the department from the trouble of distributing them and send them to the Members of Congress, or transmit them to you for distribution if you prefer that course."[2]

According to other letters in the Archives two specimens had been sent to Mr. Guthrie, four to President Pierce, and 200 to Representative S. D. Campbell on Feb. 2, 1857, and Mr. Snowden enclosed 100 more specimens in a letter to Mr. Guthrie on Feb. 4, 1857.[3]

It is presumed that every Congressman, Senator, and member of the Treasury Department got one or more specimens.

The exact number of these cents struck is not known, but there are 531 of them in the undistributed hoard of the late John A. Beck of Pittsburgh.[4] Around 1900, George W. Rice had a hoard of 756 specimens.[5]

[1] No. 141, Letters, Mint & Branches, 1856.

[2] No. 207, Letters, Mint & Branches, 1856.

[3] No. 58, Letters, Mint & Branches, 1857.

[4] Jones, John F. "The 1856 Flying Eagle Cent." The Numismatist, Vol. 57, April, 1944, p. 287.

[5] The Numismatist, Vol. 60, August 1948.


HALF CENT. Experimental piece. The regular dies.

177. Copper-nickel—P.E. (A-W 216 & 217) R.5. Garrett 3/80 **$6,000.00.** Hughes 7/80 **$1,350.00.**

(Most are copper 80%—Nickel 20%. Some are 90-10).


CENT. Obv. Large flying eagle in a plain field; no inscription or date. **Rev.** The regular die.

178. Copper-nickel—P.E. (A-W 213) R.7. **$2,000.00.**

179. Copper—P.E. (A-W 212) R.6. Stacks 12/80 **$3,800.00.**

(There is no record of the piece listed as A-W 211. This was apparently a misdescription of A-W 213.)


CENT. Obv. Eagle flying to the left; UNITED STATES OF AMERICA around; 1856 below. **Rev.** ONE CENT in a wreath of corn, wheat, cotton and tobacco.

180. Copper-nickel—P.E. (A-W 206) R.1. (There are at least 6 obverse and 3 reverse dies known.) **Proof $3,400.00. Unc. $2,700.00.**

181. Copper—P.E. (A-W 205) R.7. Two die varieties. **$1,900.00.**

182. Bronze—P.E. (A-W 207 & 208) R.7. Two die varieties. **$2,200.00.**

183. Nickel—P.E. (A-W 204) R.7. Stacks 6/77 **$1,550.00. $2,300.00.**

(The nickel specimens always have weak date and silver-like color.)


CENT. Obv. As above, but with open E's, light date, thin letters. **Rev.** ONE CENT in an oak wreath with a broad, ornamented shield.

184. Copper-nickel—P.E. (A-W 210) R.8. Garrett 3/80 **$8,500.00.**

185. Copper—P.E. (A-W 209) R.8. Stacks 12/80 **$3,200.00.**

(All known pieces listed as A-W 202 & 203 were found to be counterfeits.)

1857

Several interesting patterns and experimental pieces appeared during this year. A pattern cent was made from the dies of 1853 but dated 1857. A pattern quarter eagle was struck using this same obverse design with a reverse die similar to that of the regular issue.

The quarter dollar with only the lettering on the reverse is historically important as it appears to be the first work of Anthony C. Paquet who started working in the Mint on October 20, 1857. The style of the lettering is similar to but smaller than that used on his quarter dollar pattern of 1858.

Dr. J. T. Barclay had first tried in 1836 to get authorization for experimenting at the Mint on ways and means for preventing the abrasion, counterfeiting and deterioration of the coins of the United States. However, his request had been refused by the Director, R. M. Patterson, on the grounds that his experiments had already been tried unsuccessfully, that they would require a change in the Constitution, or that they would never be accepted by the public.

In 1856 the Director of the Mint, J. R. Snowden, became concerned about the amount of wear and abrasion on our large silver and gold coins. He therefore granted Dr. Barclay a hearing on May 28, 1856. Dr. Barclay's projected experiments related to using more durable alloys to reduce abrasion, enlarging the diameters of the planchets and making them much thinner and concave to eliminate filling, sweating and plugging. He advocated using a raised lettered edge as it is harder to counterfeit than reeding and would help to prevent edge shaving. He also suggested using fiduciary money struck from debased alloys.[1]

As a result of this interview, Dr. Barclay was given space in the Mint and provided with a small supply of planchets. Congress passed a resolution authorizing the appointment of R. E. Rogers and Henry Vethake as commissioners to investigate Dr. Barclay's proposals for preventing the abrasion, counterfeiting and deterioration of coins and to report the result of the inquiry to the Congress at its session of 1857-8.

The committee reported, "It has not been in our power because of a lack of sufficient funds to have prepared in complete detail and finish a specimen coin to submit to the department. To make a single such piece, blending that perfection of artistic design and mechanical execution which would commend it for acceptance with the protective features Dr. Barclay desires to incorporate, would require the construction of machinery on a scale and at a cost inadequate for regular minting business, and of course not to be attempted in a preliminary experimental inquiry."[2]

Nothing came of these experiments and the only surviving example known is the concave uniface double eagle which illustrates Dr. Barclay's idea that thinner concave planchets would prevent the substitution of other metal for the gold re-

[1] No. 109, Letters, Mint & Branches, 1856.

[2] Adams, Edgar H. and Woodin, William H. United States Pattern, Trial and Experimental Pieces. New York, 1913. p. 45.

1854 No 197
1856 No. 141

(Pieces listed as A-W 140, 141, 142 are die trials. See appendix A.)
(There is no record of the piece listed as A-W 180. This was probably a misdescription of A-W 171.)

1854

James C. Booth, the Melter and Assayer, suggested to Mr. Snowden, the Director of the Mint, that cents could be made out of German silver in a size between the dime and the quarter and a little thicker than a dime. In submitting pieces for examination on January 17, 1854, he reported that these were prepared solely to show the size and the character of the metal, not the design. In fact the obverse die was prepared by a copying lathe from a silver dollar obverse.[1] This fact explains the concentric lines blurring the design of Liberty, the distortion of the stars and the incompleteness of the numerals in the date.

On April 3, 1854, Mr. Snowden proposed to the Secretary of the Treasury that the copper coins be reduced in weight. He had concluded that it was the government's stamp on the coins and not their intrinsic value that made them circulate. The bulk resulting from maintaining their intrinsic value was a hindrance to their use.[1]

Mr. Snowden therefore directed the preparation of a cent weighing 100 grains in copper, and one of 96 grains in French bronze; copper 95%, tin 4%, zinc 1%.[2] These were struck using two obverse dies, the Liberty head and the flying eagle, and two reverse dies with different wreaths.

Mr. Booth reported that in an attempt to prevent the bronze pieces from tarnishing, more tin was added and this gave the pieces a golden color, "Oroide."[3] Restrikes were made, some with damaged dies.

HALF CENT. Regular dies trial piece.

155. Copper-nickel — P.E. (A-W 192) R.8.

CENT. Experimental piece. **Obv.** Liberty seated, thirteen stars, 1854. **Rev.** 1 CENT in a thick wreath of oak with acorns.

156. German silver (40% nickel, 40% copper, 20% zinc.) — R.E. (A-W 149) R.6.

157. German silver (30% nickel, 60% copper, 10% zinc.) — R.E. R.6.

158. Nickel 40%, copper 60% — R.E. R.6. (A-W 146) **$35.00.**

159. Copper — P.E. (A-W 148) R.8. (Most of the plain edge copper pieces are electrotypes, made at the Mint by Du Bois in such a way that they have a clear ring when struck.) **$30.00.**

(There is no record of the pieces listed as A-W 145 or A-W 147.)

[1]Letters, Mint & Branches, 1854. The National Archives. Washington, D. C.
[2]No. 114, Letters, Mint & Branches, 1854.
[3]No. 171, Letters, Mint & Branches, 1854.

#3

CENT. Obv. Head of Liberty wearing a diadem inscribed LI hair is knotted at the back and tied with a rope of pearls. R by Franklin Peale. ONE CENT in a small laurel wreath.

160. Copper — P.E. (A-W 186) R.4. Weight 100 grains. $2

161. Bronze — P.E. (A-W 187) R.5. Weight 96 grains. R **$22.50.**

162. Oroide — P.E. (A-W 188) R.7. **$30.00.**

CENT. Obv. Eagle flying left surrounded by thirteen stars. **Rev.** in a small laurel wreath.

163. Copper — P.E. (A-W 189) R.4. Weight 100 grains. $

164. Bronze — P.E. (A-W 190) R.5. Weight 96 grains. R **$30.00.**

CENT. Obv. Eagle flying left surrounded by thirteen stars. **Rev.** in a large laurel wreath.

165. Copper — P.E. (A-W 191) R.8. One in The Smithsonia another in Massachusetts Historical Society. A third reported

HALF DIME. Regular dies trial piece.

166. Nickel — P.E. (A-W 185) R.7.

(The pieces listed as A-W 181 to 184 inclusive, have been found t feits.)

175 CENT. Same as foregoing. Copper. R6.

176 CENT. Same as foregoing. Pure nickel. R6.

177 CENT. Same as foregoing. Copper-nickel. Reeded edge. Thick planchet. R6.

178 CENT. Same as foregoing. White metal and pure nickel. Reeded edge. Thick planchet. R6.

179 CENT. Same as foregoing. White metal and pure nickel. Reeded edge. Thin planchet. R6.

180 CENT. Regular dies of the year. Pure nickel. R12.

1854.

181 THREE DOLLARS. Regular dies. Copper-nickel. R10.

182 THREE DOLLARS. Regular dies. Nickel. R10.

183 QUARTER EAGLE. Regular dies. Copper. R10.

184 DOLLAR. (Gold.) Regular dies. Brass. R13.

185 HALF DIME. Regular dies. Nickel. Plain edge. Thick planchet. R13.


186 CENT. Liberty head. Small wreath. Copper. R2.

187 CENT. Same as foregoing. Bronze. R2.

188 CENT. Same as foregoing. Oroide. R2.

189 CENT. Flying eagle. Small wreath. Copper. R6.

190 CENT. Same as foregoing. Bronze. R6.


191 CENT. Same ob. as foregoing. Rev. large wreath. Copper. R10.

192 HALF CENT. Regular dies. Copper-nickel. Unique. In the collection of William H. Woodin of New York City. R15.

1855.

193 EAGLE. Regular dies. Copper. R12.

194 DOLLAR. (Gold.) With sixteen berries. Regular dies. Silver. R14.

195 CENT. Flying eagle. Rev. large wreath. Nickel. R6.

196 CENT. Same as foregoing. Brass. R13.

197 CENT. Same as foregoing. Copper. R2.

198 CENT. Same as foregoing. Dull steel. R15.

199 CENT. Same as foregoing. Copper-nickel. R6.

200 CENT. Same as foregoing. Bronze. R2.


201 CENT. Same ob. as foregoing. Rev. small wreath. Composition. R6.

1856.

A change of style, weight, and composition of the cent was responsible for the creation of the flying eagle cent of 1856, which was intended to replace the large, cumbersome, old-fashioned copper cents that had been struck at the mint every year from 1793 to 1857, with the single exception of the year 1815.

On Feb. 21, 1857, Congress passed a law authorizing the regular issue of the pattern flying eagle cent of the design of 1856, one of the main clauses of the act providing that the new cents be used by the officers of the mint for the redemption of the old-fashioned copper cents and the fractional parts of the Spanish and Mexican dollar, which for a long time had been passing freely throughout the country. These foreign coins had become a nuisance, had already depreciated in value, and this act really resulted in a premium being paid for them. Therefore, the most of these worn foreign coins soon found their way to the various mints, which was the end sought by the law.

During the month of May, 1857, 3,800,000 of the little flying eagle white cents had been struck at the mint, and preparations were made for the redemption under the new act. In anticipation of the general scramble that would be made a temporary building was erected in the mint yard at Philadelphia. Over two windows were placed signs "CENTS FOR CENTS" and "CENTS FOR SILVER." The redemption plan called for packages of the silver coin containing $5 worth, in no case to

exceed $50. The little cents were placed in bags containing 500 each.

On Nov. 5, 1859, the Director of the Mint reported that the mint had received these coins to the amount of $1,620,997, of which $546,305 had been deposited in exchange for the large copper cents.

At the expiration of two years the redemption of the Spanish and Mexican silver and the old-fashioned cents had almost ceased, but in their wake had come such a flood of the flying eagle cents that they became almost as much of a nuisance as had the depreciated silver currency. Many persons through the redemption act had come into the possession of far more cents than they could find legitimate use for, and had begun to pay bills of $1, $2, and even $3 with the little coins, this practice prevailing to an almost unendurable extent.

1856.

202 DOLLAR. (Gold.) Regular dies. Nickel. R13.

203 DOLLAR. Same as foregoing. Brass. R13.

204 CENT. Flying eagle. Rev. tobacco wreath. The adopted reverse of regular cent of 1857 and 1858. Pure nickel. Thick planchet. R12.

205 CENT. Same as foregoing. Pure copper. Thin planchet. R12.

206 CENT. Same as foregoing. Copper-nickel. Thick planchet. This is the commonest variety. R1.

207 CENT. Same as foregoing. Bronze. Thick planchet. R10.

208 CENT. Same as foregoing. Bronze. Thin planchet. R10.

209 CENT. Same ob. as foregoing. Rev. oak wreath and ornamented shield. Pure copper. R12.

210 CENT. Same as foregoing. Copper-nickel. R12.

211
CENT. Eagle in plain field. Neither inscription nor date. Rev. tobacco wreath. Nickel. R12.

212
CENT. Same as foregoing. Copper. R12.

213
CENT. Same as foregoing. Copper-nickel. R12.

214
CENT. Eagle and inscription, but no date. Rev. tobacco wreath, but ONE CENT omitted. Nickel. R12.

215
CENT. Same ob. as foregoing. Rev. regular tobacco wreath, with ONE CENT. Nickel. R12.

216
HALF CENT. Regular dies. Copper-nickel. Ninety parts copper and 10 parts nickel. R6.

217
HALF CENT. Same as foregoing. Copper-nickel. Eighty-eight parts copper and twelve parts nickel. R6.

1857.

218
QUARTER EAGLE. Head of Liberty like three-cent piece of 1865. Rev. 2½ DOLLARS 1860 within a wreath of laurel. Copper. R12.

219
QUARTER EAGLE. Same ob. as foregoing. Rev. similar to regular die of the year, the eagle being somewhat smaller and the shield more prominent. Copper. R12.

220
DOLLAR. (Gold.) Regular dies. Silver, gilded. R12.

221
HALF DOLLAR. Regular dies. Silver, but with a large percentage of aluminum. R14.

222
QUARTER DOLLAR. Regular ob. Rev. UNITED STATES OF AMERICA QUAR. DOL. surrounding a plain field. (The regular reverse, with the eagle omitted). Copper. Thick planchet. R6.

223
QUARTER DOLLAR. Same as foregoing. Copper. Thin planchet. R6.

224
CENT. Head of Liberty surrounded by thirteen stars. Rev. ONE CENT in wreath of olive. This is a smaller planchet than the regular cent of the year. The reverse was struck from the reverse die of the cent of 1853. Nickel. R13.

225
CENT. Same as foregoing. Copper-nickel. R13.

226
CENT. Regular dies. Copper. R12.

227
CENT. Regular dies. Pure Nickel. R12.

228
CENT. This variety shows only the reverse of the cent of 1853, ONE CENT in olive wreath. Rev. Blank. Copper. R13.

229
CENT. Same as foregoing. Copper-nickel. R13.

230
CENT. Same as foregoing. Silver-copper. R13.

1858.

231
QUARTER EAGLE. Regular dies. Brass. R12.

232
DOLLAR. (Gold). Regular dies. Copper. R12.

233
DOLLAR. Type of the accepted dollar of the year, but the letters are larger. Copper. R13.

234
HALF DOLLAR. Regular ob. Rev. the Paquet design. Silver. R14.